

527459  
10/527459

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
25 March 2004 (25.03.2004)

PCT

(10) International Publication Number  
**WO 2004/024291 A1**

(51) International Patent Classification<sup>7</sup>: **B01D 29/05**,  
33/23

[US/US]; 6883 County Road 30, Bloomfield, NY 14469  
(US). **YOST, Jeffrey, J.** [US/US]; 6572 Fairville Station  
Rd., Newark, NY 14469 (US).

(21) International Application Number:  
PCT/FI2003/000645

(74) Agent: **OUTOKUMPU OYJ, INTELLECTUAL  
PROPERTY MANAGEMENT**; P.O. Box 27, FIN-02201  
Espoo (FI).

(22) International Filing Date:  
4 September 2003 (04.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
20021631 12 September 2002 (12.09.2002) FI

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,  
SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA,  
UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (*for all designated States except US*): **OUT-  
OKUMPU OYJ** [FI/FI]; Riihitontuntie 7, FIN-02200 Es-  
poo (FI).

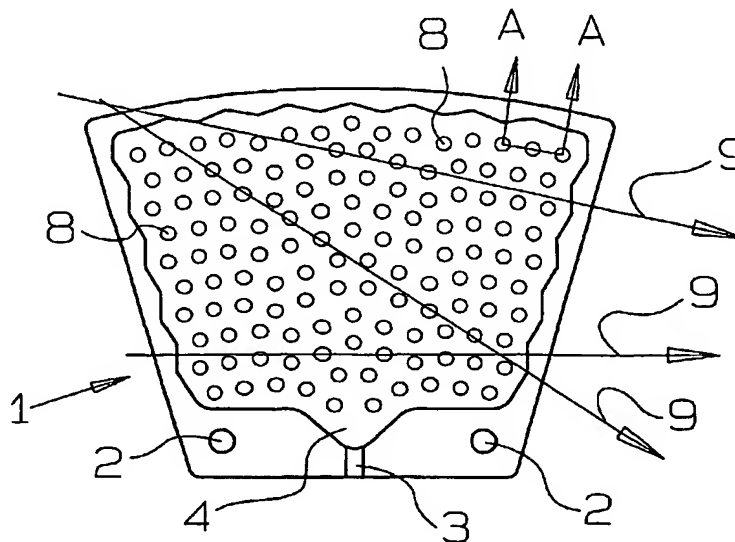
(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO,  
SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM,  
GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **HÖGNABBA**,  
Olli [FI/FI]; Kabanovintie 11, FIN-02460 Kantvik (FI).  
**EKBERG, Bjarne** [FI/FI]; Suovantie 63 B, FIN-20360  
Turku (FI). **VARJONEN, Veikko** [FI/FI]; Ruotsinkatu  
16 A 1, FIN-20740 Turku (FI). **EVELAND, Dave, B.**

[Continued on next page]

(54) Title: **FILTER PLATE**



(57) Abstract: The invention relates to a microporous filter plate to be used in a suction drier, particularly in a capillary filter, the filter plate of which contains a membrane with a mean pore size of about 1 micrometer, a substrate, whereon the membrane is positioned, and a recessed area in the interior of the filter plate with cavities for a filtrate and for a backwash liquid. According to the invention the recessed area in the interior of the filter plate is provided with supporting elements, in which the ratio between the longest dimension and the shortest dimension is in maximum 1.5 in the cross-section parallel to the filtration surface of the filter plate, for allowing liquid to flow essentially simultaneously and easily in all directions and for the structure of the filter plate being durable for stresses based on pressure peaks.

WO 2004/024291 A1



**Declarations under Rule 4.17:**

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU,*

*TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)*

- *of inventorship (Rule 4.17(iv)) for US only*

**Published:**

- *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*